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EXAMINER	
TSAI, SHENG JEN	

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2186	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/923,727	LOMNES, RANDY KEITH	
	Examiner	Art Unit	
	Sheng-Jen Tsai	2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 September 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-83* is/are pending in the application.

4a) Of the above claim(s) *10,12,55 and 82* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,11,13-54,56-81 and 83* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is taken in response to Applicants' Amendment and Remarks filed on September 15, 2005 regarding application 09,923,727 filed on August 6, 2001.

2. Claims 1-83 are pending in the application under consideration.

Claims 10, 12, 55 and 82 have been cancelled.

Claims 1-3, 9, 11, 15, 16-17, 24-26, 31-32, 36-37, 40-42, 47-50, 54, 62-63, 66, 72, 76, 78-81 and 83 have been amended.

3. ***Response to Remarks and Amendments***

Applicants' remarks have been fully and carefully considered with examiner's response set forth below.

As to remarks and amendments for all claims:

In response to Applicant's the amendments and remarks, all claim rejections based on Hansen et al. (US 6,016,553) and White et al. (US 6,092,161) as indicated in the previous Office Action have been withdrawn.

During the course of reconsideration, new references (Kobayashi et al., US 5,437,018 and Hansen et al., US 5,832,263) have been identified, and a new ground of claim analysis based on the new references has been embarked. Refer to the corresponding sections of claim analysis for details.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 28 and 51 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 28 depends from claim 27, which in turn depends from claim 3. Claim 28 recites the limitation of "**copying the data from the redirected space to the associated locations in the protected space**, thereby making permanent the data that was redirected to the redirected space," while claim 3 recites the limitation of "... so that the data stored in the location in the protected space automatically remain **unaltered** when the computer system is restarted from a powered-down state."

Independent claim 3 recites the limitation that the locations in the protected space must remain unaltered, but dependent claim 28 recites the limitation of copying data, which may has been modified, from the redirected space back into the protected space, hence altering the data in locations in the protected space. These two limitations are contradictory to each other.

Claim 51 depends from claim 50, which in turn depends from claim 32. Claim 51 recites the limitation of "**copying the data from the redirected space to the associated locations in the protected space**, thereby making permanent the data that was redirected to the redirected space," while claim 32 recites the limitation of "... so that the data stored in the location in the protected space automatically remain **unaltered** when the computer system is restarted from a powered-down state."

Independent claim 32 recites the limitation that the locations in the protected space must remain unaltered, but dependent claim 51 recites the limitation of copying

data, which may has been modified, from the redirected space back into the protected space, hence altering the data in locations in the protected space. These two limitations are contradictory to each other.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-9, 11, 13-15, 27, 29-30, 32-40, 50, 52-64, 66-67, 71-72, 74, 76-79, 81 and 83 are rejected under 35 U.S.C. 102(b) as being anticipated by Hansen et al. (U.S. 5,832,263).

As to claim 1, Hansen et al. disclose **a method in a computer system for automatically protecting data stored on a storage device from alteration** [System and Method for In-Place Modification of Information Recorded in Read-Only Storage Using Modifiable Non-Volatile Storage Associated with An Agent (title; abstract); the storage device is a read-only storage including CD-ROMs, ROMs, read-only network directories, read-only files, and WORM media and devices (abstract); since the storage device is read-only, it is automatically protected from alteration as modifications are not allowed], **the computer system having an operating system** [column 4, lines 43-51], **redirection driver code** [the corresponding redirection driver comprises the Information Retriever/Modifier (Agent) (figure 3, 48), the In-Place Modifier (figure 3,

42), the Non-Modifiable Store (figure 3, 44) and the Tracking Store (figure 3, 46); figures 1 and 2 show the flow diagrams of the redirection driver code; column 2, lines 58-65], **available storage and redirected storage** [the Non-Modifiable Store (figure 3, 44) and the Tracking Store (figure 3, 46); column 5, lines 30-50; column 5, lines 65-67; column 6, lines 1-30], **comprising**:

Starting the computer system from a first powered-down state, wherein the data stored in a plurality of original locations on the storage device is in an original state [the Non-Modifiable Store (figure 3, 44) contains read-only data that is never changed from its original state because it is read-only];

Loading the redirection driver code into a memory of the computer system [column 2, lines 58-65; column 5, lines 51-64];

receiving a request for write access to a portion of data on the storage device, the request referring to one of the original locations on the storage device [abstract; column 2, lines 17-21; column 4, lines 27-42] ;

under control of the loaded redirection driver [the Information Retriever/Modifier (Agent) (figure 3, 48) and the In-Place Modifier (figure 3, 42); column 5, lines 51-67; column 6, lines 1-30],

intercepting the request for write access to the data [the method and system intercepts read and write requests targeted at the read-only storage (abstract; column 2, lines 17-22); figure 2];

determining whether the request refers to the one of the original locations [the Non-Modifiable Store (figure 3, 44)] **that has previously been redirected to**

redirected storage [the Tracking Store (figure 3, 46)] **when the request refers to an original location that has previously been redirected to redirected storage, using a location in redirected storage as a current redirected location** [figure 1], **otherwise allocating available storage to a new location in redirected storage and using the new location as the current redirected location** [figure 2]; **and redirecting the access request to refer to the current redirected location, such that the request transparently accesses the current redirected location instead of the original location** [figures 1 and 2]; **and**

restarting the computer system from a second powered-down state, wherein the data stored in the plurality of original location on the storage device automatically remains unaltered from the original state, without any restorative copying of data to the plurality of original locations [the Non-Modifiable Store (figure 3, 44) contains read-only data that is never changed from its original state because it is read-only, hence its data is always in its original state each time upon power-on automatically without any restorative copying of data to the plurality of original locations].

Further, claims 32, 54, 55, 72, 79, and 83 are rejected due to the same reasoning as provided in "As to claim 1."

As to claim 2, Hansen et al. disclose **a computer system for automatically protecting data stored on a storage device from alteration, the data stored in a plurality of original locations on the storage device and in an original state when**

the computer system is started from a first powered-down state [refer to "As to claim 1"], **comprising**:

data access request that requests modification to an original location on the storage device [refer to "As to claim 1," abstract; column 2, lines 17-22];

available storage [refer to "As to claim 1"]; **and**

redirection driver, installed in the computer system during power-up initialization [refer to "As to claim 1"], **that,**

automatically intercepts the data access request [refer to "As to claim 1"]; **and redirects the access request to access a redirected location in the available storage, such that a requested modification at the original location is not performed and is instead performed to the redirected location, and such that, when the computer system is restored from a second powered-down state, the data in the original location on the storage device automatically remains unaltered from the original state without any restorative copying of data to the plurality of original locations** [refer to "As to claim 1"].

As to claim 3, Hansen et al. disclose **a method in a computer system for using software loaded into memory during power-up initialization to automatically protecting data stored in a portion of a storage device** [refer to "As to claim 1," figures 1 and 2; column 4, lines 43-51; column 5, lines 51-67; column 6, lines 1-30] **having a designated protected space** [the Non-Modifiable Store (figure 3, 44)], **the computer system having a redirected space** [the Tracking Store (figure 3, 46)], **comprising**:

Under control of the loaded software [refer to "As to claim 1," figures 1 and 2; column 4, lines 43-51; column 5, lines 51-67; column 6, lines 1-30]; **intercepting a request from requesting code to modify a location in the protected space of the storage device** [refer to "As to claim 1"]; **and determining a location in the redirected space that is associated with the location in the protected space** [refer to "As to claim 1"]; **and redirecting the intercepted request to modify the determined location in the redirected space instead of the location in the protected space, in a manner that is transparent to the requesting code** [the modifying information may appear to the user to ... (abstract)], **so that the data stored in the location in the protected space automatically remains unaltered when the computer system is restarted from a powered-down state** [refer to "As to claim 1"].

As to claim 4, refer to "as to claim 3" and "As to claim 1."

As to claim 5, Hansen et al. disclose that **the driver is inserted into a driver hierarchy that is controlled by an operating system of the computer system** [column 4, lines 43-51].

As to claim 6, Hansen et al. teach that **the designated protected space of the storage device comprises the entire storage device** [the Non-Modifiable Store (figure 3, 44) may comprises as a ROM or any other read-only device, and the entire device is read-only (abstract)].

As to claim 8, Hansen et al. teach that **the determined location in the redirected space resides in another storage device** [the Tracking Store (figure 3,

46) may be a RAM (column 1, lines 48-65) that is separated from the NMS; the NMS and TS both may be implemented with removable media (column 5, lines 30-50)].

Further, claims 33, 35, and 58 are rejected due to the same reasoning as provided in "As to claims 6 and 8."

As to claim 7, Hansen et al. teach that **the determined location in the redirected space resides in the storage device** [the NMS and TS both may be a permanent part of the storage system (column 5, lines 30-50)].

Further, claims 34 and 59 are rejected due to the same reasoning as provided in "As to claim 7."

As to claim 9, Hansen et al. teach **the method of claim 3. further comprising**: **intercepting from requesting code a request to read the location in the protected space of the storage device** [figures 1 and 2, abstract; column 2, lines 17-22]; **determining the location in the redirected space that is associated with the location**
in the protected space [figures 1 and 2; column 3, lines 62-67; column 4, lines 1-15]; **and**
automatically redirecting the intercepted request to read from the determined location in the redirected space instead of from the location in the protected space in a manner that is transparent to the requesting code [figures 1 and 2; column 5, lines 51-67; column 6, lines 1-30].

Further, claims 36, 60, and 81 are rejected due to the same reasoning as provided in "As to claim 9."

As to claim 11, Hansen et al. teach that **the request to access a location in the protected space is a request to write to the protected space** [the method and system intercepts read and write requests targeted at the read-only storage (abstract; column 2, lines 17-22); figure 2].

Further, claims 37, 61, and 82 are rejected due to the same reasoning as provided in "As to claim 11."

As to claim 38, refer to "As to claim 1."

As to claim 13, Hansen et al. teach **the redirecting the intercepted write request results in automatically allocating available space to use as new redirected space and writing data to a location in the new redirected space** [figure 2; column 5, lines 51-67; column 6, lines 1-30].

As to claims 14 and 39, Hansen et al. teach **the determining the location in the redirected space that is associated with the location in the protected space further comprises first allocating available space to be used as the redirected space** [figure 2; column 5, lines 51-67; column 6, lines 1-30].

As to claims 15, 40, and 62, Hansen et al. teach that **the storage device is one of a hard disk drive, a read/write CD ROM drive, a floppy disk drive, and a semi-persistent storage device** [column 3, lines 46-60; column 1, lines 40-65].

As to claim 27, Hansen et al. teach **the method of claim 3, further comprising: receiving a request to shutdown the computer system; and upon receiving the request to shutdown the computer system, saving the data stored in the**

redirected space [the use of non-volatile storage device such as FLASH to store redirected data (column 1, lines 48-51)].

As to claim 29, Hansen et al. teach **saving the data stored in the redirected space comprises saving the association between the protected space and the redirected space without copying the data from the redirected space** [the protected space is read-only, so no copying back is permitted; tables are used to map and track modified areas within MNS (column 5, lines 51-67; column 6, lines 1-30)].

As to claim 30, Hansen et al. teach **using redirection tables to associate locations in the protected space to locations in the redirected space** [tables are used to map and track modified areas within MNS (column 4, lines 66-67; column 5, lines 1-11; column 5, lines 51-67; column 6, lines 1-30)].

As to claim 32, refer to "As to claim 1."

As to claim 50, refer to "As to claim 27."

As to claim 52, refer to "As to claim 29."

As to claim 53, refer to "As to claim 30."

As to claim 54, refer to "As to claim 1."

As to claim 56, refer to "As to claim 30."

As to claim 57, refer to "As to claim 27."

As to claim 58, refer to "As to claim 8."

As to claim 59, refer to "As to claim 7."

As to claim 60, refer to "As to claim 1."

As to claim 61, refer to "As to claim 1."

As to claim 62, refer to "As to claim 15."

As to claim 63, Hansen et al. teach that **the redirection driver refers to the redirected storage space in at least one of files, clusters, virtual clusters, and sectors of data** [for file based system, ... (column 6, lines 1-12; column 6, lines 31-33; column 6, lines 52-67; figures 4 and 5)].

As to claim 64, Hansen et al. teach that **the redirection driver refers to the redirected storage space using multiple data addressing abstractions** [column 6, lines 52-67; figures 4 and 5].

As to claim 66, refer to "As to claim 5."

As to claim 67, Hansen et al. teach that **unprotected space designated on the storage device for allowing modifications to a portion of the storage device** [RAM is used as the unprotected area to facilitating modifying the read-only space (abstract; column 1, lines 40-60)].

As to claim 71, refer to "As to claim 27."

As to claim 72, refer to "As to claim 1."

As to claim 74, refer to "As to claim 5."

As to claim 76, refer to "As to claim 63."

As to claim 77, refer to "As to claim 64."

As to claim 78, refer to "As to claim 30."

As to claim 79, refer to "As to claim 1."

As to claim 81, refer to "As to claim 1."

As to claim 83, refer to "As to claim 1," "As to claim 30," and "As to claim 13."

8. Claims 1-9, 11, 13-26, 30-49, 53-54, 56, 58-67, 69-70, 72, 74- 81 and 83 are rejected under 35 U.S.C. 102(b) as being anticipated by Kobayashi et al. (U.S. 5,437,018).

As to claim 1, Kobayashi et al. disclose **a method in a computer system for automatically protecting data** [the ROM space (figure 2, 21; abstract)] **stored on a storage device** [the storage device is the Semiconductor Auxiliary Storage (figure 1, 9; figure 2)] **from alteration** [a memory circuit in the semiconductor auxiliary storage comprises ROM and RAM, and a portion of the ROM contents is copied into the RAM so that access modification for programs and data is permitted while the basic program and data is retained in a nonvolatile manner (abstract)], **the computer system having an operating system** [figure 4; column 5, lines 29-48], **redirection driver code** [figure 4; column 2, lines 51-68; column 3, lines 1-11], **available storage and redirected storage** [the RAM space (figure 2, 21) is the redirected storage space as well as the available space (figures 10A~10C)], **comprising**:

Starting the computer system from a first powered-down state, wherein the data stored in a plurality of original locations on the storage device is in an original state [the ROM space (figure 2, 21) contains read-only data that is never changed from its original state because it is read-only];

Loading the redirection driver code into a memory of the computer system [figure 4; column 10, lines 4-20];

receiving a request for write access to a portion of data on the storage device, the request referring to one of the original locations on the storage device [abstract; column 2, lines 51-68; column 3, lines 1-11] ;

under control of the loaded redirection driver [column 2, lines 51-68; column 3, lines 1-11; figure 4],

intercepting the request for write access to the data [column 2, lines 51-68; column 3, lines 1-11];

determining whether the request refers to the one of the original locations [the ROM space (figure 2, 21)] **that has previously been redirected to redirected storage** [the RAM space (figure 2, 21); figures 10A~10C] **when the request refers to an original location that has previously been redirected to redirected storage, using a location in redirected storage as a current redirected location** [column 2, lines 51-68; column 3, lines 1-11; figures 10A~10C], **otherwise allocating available storage to a new location in redirected storage and using the new location as the current redirected location** [column 2, lines 51-68; column 3, lines 1-11; figures 10A~10C]; **and**

redirecting the access request to refer to the current redirected location, such that the request transparently accesses the current redirected location instead of the original location [column 2, lines 51-68; column 3, lines 1-11; figures 10A~10C]; **and**

restarting the computer system from a second powered-down state, wherein the data stored in the plurality of original location on the storage device

automatically remains unaltered from the original state, without any restorative copying of data to the plurality of original locations [the ROM space (figure 2, 21) contains read-only data that is never changed from its original state because it is read-only, hence its data is always in its original state each time upon power-on automatically without any restorative copying of data to the plurality of original locations].

Further, claims 32, 54, 55, 72, 79, and 83 are rejected due to the same reasoning as provided in "As to claim 1."

As to claim 2, Kobayashi et al. disclose **a computer system for automatically protecting data stored on a storage device** [the storage device is the Semiconductor Auxiliary Storage (figure 1, 9; figure 2)] **from alteration, the data stored in a plurality of original locations on the storage device and in an original state** [the ROM space (figure 2, 21; abstract)] **when the computer system is started from a first powered-down state** [refer to "As to claim 1"], **comprising**:

data access request that requests modification to an original location on the storage device [refer to "As to claim 1," abstract; column 2, lines 51-68; column 3, lines 1-11];

available storage [refer to "As to claim 1"]; **and**

redirection driver, installed in the computer system during power-up initialization [refer to "As to claim 1"], **that,**

automatically intercepts the data access request [refer to "As to claim 1"]; **and**

redirects the access request to access a redirected location in the available storage, such that a requested modification at the original location is not performed and is instead performed to the redirected location, and such that, when the computer system is restored from a second powered-down state, the data in the original location on the storage device automatically remains unaltered from the original state without any restorative copying of data to the plurality of original locations [refer to "As to claim 1"].

As to claim 3, Kobayashi et al. disclose **a method in a computer system for using software loaded into memory during power-up initialization to automatically protecting data stored in a portion of a storage device** [the storage device is the Semiconductor Auxiliary Storage (figure 1, 9; figure 2)] **having a designated protected space** [the ROM portion of the Semiconductor Auxiliary Storage is the designated protected space, "a memory circuit in the semiconductor auxiliary storage comprises ROM and RAM, and a portion of the ROM contents is copied into the RAM so that access modification for programs and data is permitted while the basic program and data is retained in a nonvolatile manner" (abstract)], **the computer system having a redirected space** [the RAM portion of the Semiconductor Auxiliary Storage is the designated redirected space, "a memory circuit in the semiconductor auxiliary storage comprises ROM and RAM, and a portion of the ROM contents is copied into the RAM so that access modification for programs and data is permitted while the basic program and data is retained in a nonvolatile manner" (abstract)], **comprising**:

Under control of the loaded software [column 1, lines 28-34];

intercepting a request from requesting code to modify a location in the protected space of the storage device [column 2, lines 51-68; column 3, lines 1-11]; **and**

determining a location in the redirected space that is associated with the location in the protected space [via address translation (column 2, lines 51-68; column 3, lines 1-11)]; **and**

redirecting the intercepted request to modify the determined location in the redirected space instead of the location in the protected space, in a manner that is transparent to the requesting code [via address translation (column 2, lines 51-68; column 3, lines 1-11)]**, so that the data stored in the location in the protected space automatically remains unaltered when the computer system is restarted from a powered-down state** [a memory circuit in the semiconductor auxiliary storage comprises ROM and RAM, and a portion of the ROM contents is copied into the RAM so that access modification for programs and data is permitted while the basic program and data is retained in a nonvolatile manner (abstract)].

As to claim 4, refer to "As to claim 3."

As to claim 5, Kobayashi et al. disclose that **the driver is inserted into a driver hierarchy that is controlled by an operating system of the computer system** [column 5, lines 29-68; figure 4].

As to claims 6 and 33, Kobayashi et al. disclose that **the designated protected space of the storage device comprises the entire storage device** [a separate semiconductor auxiliary storage may be employed to store software programs as well

data (column 4, lines 21-28), in this case the entire semiconductor auxiliary storage stores the protected space].

As to claims 7 and 34, Kobayashi et al. disclose that **the determined location in the redirected space resides in the storage device** [a memory circuit in the semiconductor auxiliary storage comprises ROM (the protected space) and RAM (the redirected space), and a portion of the ROM contents is copied into the RAM so that access modification for programs and data is permitted while the basic program and data is retained in a nonvolatile manner (abstract; figure 2), hence the RAM (the redirected space) resides in the semiconductor auxiliary storage].

As to claims 8 and 35, Kobayashi et al. disclose that **the determined location in the redirected space resides in another storage device** [a plurality of such storage structures are usually provided and a separate semiconductor auxiliary storage may be employed to store software programs as well data (i.e., ROM space) (column 4, lines 21-28), in this case the entire semiconductor auxiliary storage stores the protected space (ROM) while another storage device being used as a RAM space].

As to claims 9 and 36, refer to "As to claims 1-3."

As to claim 11 and 37, refer to "As to claims 1-3."

As to claims 13 and 38, Kobayashi et al. disclose that **the redirecting the intercepted write request results in automatically allocating available space to use as new redirected space and writing data to a location in the new redirected space** [figure 11; figure 9; figure 10].

As to claims 14 and 39, Kobayashi et al. disclose that **the determining the location in the redirected space that is associated with the location in the protected space further comprises first allocating available space to be used as the redirected space** [figure 11; figure 9; figure 10].

As to claims 15 and 40, Kobayashi et al. teach that **the storage device is one of a hard disk drive, a read/write CD ROM drive, a floppy disk drive, and a semi-persistent storage device** [figure 1].

As to claims 16-17, 20, 41-42 and 63, As to claim 15, Kobayashi et al. teach that **the location in the protected/redirected space refers to at least one of a sector, a group of sectors, a cluster, and a group of clusters** [figures 6-7; figures 10A~10C; columns 7-8].

As to claims 18 and 43, Kobayashi et al. teach that **the sector is a logical sector** [FIGS. 10A-10C illustrate a relationship among a data format, a memory type, and a logical address in the memory space of semiconductor auxiliary storage (column 3, lines 41-43)].

As to claim 19, Kobayashi et al. teach that **the sector is a physical sector** [FIG. 12 is a flow chart of a translation process from a logical address to a physical address (column 3, lines 45-46)].

As to claim 20 and 43, Kobayashi et al. teach that **the location in the protected space refers to a sector** [figures 6-7; figures 10A~10C; columns 7-8].

As to claims 21 and 44, Kobayashi et al. teach that **the location in the protected space refers to an abstraction of storage that is larger than a sector** [figures 6-7; figures 10A~10C; columns 7-8].

As to claims 22 and 45, Kobayashi et al. teach that **the redirected space is organized according to a combination of different storage units** [a plurality of such storage structures are usually provided and a separate semiconductor auxiliary storage may be employed to store software programs as well data (i.e., ROM space) (column 4, lines 21-28), in this case the entire semiconductor auxiliary storage stores the redirected space (RAM) cross a plurality of separate semiconductor auxiliary storage devices].

As to claims 23 and 46, refer to "As to claim 16" through "As to claim 22." Note that the concept of a "logical" space leads to a "virtual" space.

As to claims 24, 47, 67, and 69, Kobayashi et al. teach that **designating a portion of the storage device as unprotected space** [the RAM also serves as unprotected space since its contents can be modified]; **intercepting a request to access a location in the unprotected space of the storage device** [column 2, lines 51-68; column 3, lines 1-11]; performing the request without redirection to access the unprotected space [only the ROM space is redirected (column 2, lines 51-68; column 3, lines 1-11)].

As to claims 25 and 48, Kobayashi et al. teach that the method of claim 3, **further comprising: receiving a request to shutdown the computer system; and upon receiving the request to shutdown the computer system, disregarding the**

data in the redirected space [the RAM data is not saved, and will be lost upon power-down since RAM in general is volatile], **so that when the computer system is rebooted, the data in the protected space of the storage device appears unaltered** [ROM data remains the same because it is read-only].

As to claims 26 and 49, refer to "As to claims 25 and 48."

As to claims 30, 53 and 56, Kobayashi et al. teach **using redirection tables to associate locations in the protected space to locations in the redirected space** [figures 6-7; figures 10A~10C; columns 7-8; figure 11; figure 9; column 2, lines 51-68; column 3, lines 1-11].

As to claim 31, Kobayashi et al. teach that **the redirection tables comprise at least one of a protected space redirection table, an available space table, and an unprotected space table** [figures 6-7; figures 10A~10C; columns 7-8; figure 11; figure 9; column 2, lines 51-68; column 3, lines 1-11].

As to claim 32, refer to "As to claims 1-3."

As to claim 54, refer to "As to claims 1-3."

As to claim 58, refer to "As to claims 8."

As to claim 59, refer to "As to claims 7."

As to claim 60, refer to "As to claims 1-3."

As to claim 61, refer to "As to claims 13."

As to claim 62, refer to "As to claims 15."

As to claim 63, refer to "As to claims 16-17."

As to claim 64, refer to "As to claims 21."

As to claim 65, refer to "As to claims 23 and 46."

As to claim 66, refer to "As to claims 1-3."

As to claim 70, refer to "As to claim 31."

As to claim 72, refer to "As to claims 1-3."

As to claim 74, refer to "As to claim 5."

As to claim 75, refer to "As to claim 5."

As to claim 76, refer to "As to claims 16-17."

As to claim 77, refer to "As to claim 21."

As to claim 78, refer to "As to claim 30."

As to claim 79, refer to "As to claims 1-3."

As to claim 80, refer to "As to claim 31."

As to claim 81, refer to "As to claims 1-3."

As to claim 83, refer to "As to claims 1-3."

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claim 73 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hansen et al. (U.S. 6,016,553), **or** Kobayashi et al. (U.S. 5,437,018).

As to claim 73, Hansen/ Kobayashi et al. do not mention that the redirection driver cannot be uninstalled by a user without special access privileges. However, it is well known that such a responsibility and privilege is only granted to special user such as a system administrator (see Microsoft Computer Dictionary, 5th edition, Microsoft Press, 2002, page 508). Such a policy is needed to maintain the security and availability of the system resources. Therefore, it would have been obvious for one of ordinary skills in the art at the time of Applicant's invention to realize the importance of granting the installing/uninstalling privilege only to authorized persons, and to enforce this policy on the system disclosed by Hansen/ Kobayashi et al. to ensure the security of the system.

11. Claim 68 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hansen et al. (U.S. 6,016,553), **or** Kobayashi et al. (U.S. 5,437,018), and in view of White et al. (US 6,092,161).

As to claim 68, Hansen/ Kobayashi et al. do not explicitly teach that **the redirection driver disregarding requests to access locations referred to by the unprotected space so that data in the unprotected locations is modified according to the access requests**. However, White et al. teach in their invention "Method and Apparatus for Controlling Access to and Corruption of Information in a Computer" that reading and writing may be allowed for user-granted information sectors (i.e., unprotected space) in an active general partition (column 5, lines 3-10). Allowing users to access unprotected space makes the system more user-friendly and also better utilizes the computer resources. Therefore, it would have been obvious for

one of ordinary skills in the art at the time of Applicant's invention to realize the benefit of allowing the access to unprotected space, and to incorporate it into the existing scheme disclosed by Hansen/ Kobayashi et al. to further enhance the flexibility of the system.

12. ***Related Prior Art***

The following list of prior art is considered to be pertinent to applicant's invention, but not relied upon for claim analysis conducted above.

- Harish et al., (US 5,940,850), "System and Method for Selectively Enabling Load-on-Write of Dynamic ROM data to RAM."
- Piazza, (U.S. 5,603,011), "Selective Shadowing and Paging in Computer Memory Systems."
- Wade et al., (U.S. 5,552,776), "Enhanced Security System for Computing Devices."
- Alexander et al., (U.S. 5,363,334), "Write Protection Security for Memory Device."
- Brant et al., (U.S. 5,848,435), "Address Protection Circuit and Method for Preventing Access to Unauthorized Address Ranges."
- Rose, (U.S. 5,144,660), "Securing a Computer against Undesired Write Operations to or Read Operations from a Mass Storage Device."
- Berglund et al., (U.S. 3,828,327), "Simplified Storage Protection and Address Translation under System Mode Control in a Data Processing System."

- Elliott et al., (U.S. 5,559,993), "Hardware Circuit for Securing a Computer against Undesired Write and/or Read operations."
- Schlotterer et al., (U.S. 3,827,029), "Memory and Program Protection System for a Digital Computer System."
- Belsan et al., (U.S. 5,193,184), "Deleted Data File Space Release System for a Dynamically Mapped Virtual Data Storage Subsystem."

Conclusion

13. Claims 1-9, 11, 13-54, 56-81 and 83 are rejected as explained above.

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sheng-Jen Tsai whose telephone number is 571-272-4244. The examiner can normally be reached on 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Kim can be reached on 571-272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sheng-Jen Tsai

Examiner

Art Unit 2186

October 18, 2005

PIERRE BATAILLE
PRIMARY EXAMINER